



August 16, 2019

Mr. Steve Spurlin
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street, 11th Floor
Atlanta, GA 30303

**Subject: Nashville International Airport Gas Line
Nashville, Davidson County, Tennessee
Contract Number (No.) EP-S4-14-03
TDD No. TT-03-034**

Dear Mr. Spurlin:

The Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) submits this letter report summarizing emergency response activities conducted April 9 through 19, 2019, at the Nashville International Airport Gas Line release site (Site) in Nashville, Davidson County, Tennessee. This report includes three enclosures:

- Enclosure 1 contains figures, including a site location map.
- Enclosure 2 contains a summary tables of air monitoring data.
- Enclosure 3 contains a copy of the Tetra Tech START logbook notes.

EMERGENCY RESPONSE ACTIVITIES

On April 9, 2019, the National Response Center (NRC) notified the U.S. Environmental Protection Agency Region 4 (EPA) that while conducting drilling operations the Tennessee Department of Transportation, (TDOT) struck and ruptured a Colonial Pipeline (Colonial) owned, 12-inch gasoline transmission pipeline at the Nashville International Airport discharging an unknown quantity of product (NRC report #1242283). The breach occurred at 36.137048 degrees north and -86.660321 degrees west (see Figure 1 in Enclosure 1).

Colonial shut down the transmission line after receiving notification of a potential line strike at 1105 hours local time on April 9, 2019. Colonial, their contractors, and the Nashville Airport Authority's on-site contractor excavated the immediate area around the pipeline rupture and established containment measures. Boom and absorbent pads were deployed at six downstream locations along McCrory Creek, approximately 200 yards apart. Contractors used vacuum trucks to collect pooled fuel from the excavated areas and portable tanks to stage waste liquid storage onsite. Additional personnel monitored the creek and areas between the creek and the ruptured line.

On April 9, 2019, the EPA and Tetra Tech START mobilized to the site and integrated into Unified Command. On-Scene Coordinator (OSC) Steve Spurlin reported to the Incident Command Post and OSC Jordan Garrard assisted with field operations. The initial report from Colonial, indicated that approximately 750 barrels (31,500 gallons) of gasoline was discharged into a field located at the end of an airport runway. Once Colonial was able to evaluate the specific damage to the pipeline, the final estimate of the volume discharged was 340 barrels (14,280 gallons). The gasoline flowed eastward overland and in existing drainage features towards McCrory Creek, a tributary to the Cumberland River. Upon arrival

on-scene, EPA observed pooled fuel within the drainage features leading to McCrory Creek. A multi-acre area of surface soils sloping towards McCrory Creek was impacted by the fuel. The area underlain with karst geology, where eroded limestone creates fissured pathways and sinkholes allowing the discharged product to migrate unpredictably. Migration of the discharged product into the down gradient surface water body, McCrory Creek, was closely observed. McCrory Creek is located approximately nine hundred feet to the east of the discharge point and flows approximately three miles to the Stones River which joins the Cumberland River, approximately five miles downstream.

As more heavy equipment arrived onsite, the drainage ditch located along the access road, to the north of the rupture, was excavated to below original grade by several inches, where possible. All excavations were affected by the extremely variable size of the fill material in the hillside. Underflow dams were installed at the end of the drainage ditch excavation and just prior to where a topographically lower drainage ditch from the hillside was routed to enter McCrory Creek, southeast of the rupture (see Figure 3 in Enclosure 1). Several exploratory trenches and holes were excavated to target the release pathway. No product was initially observed in the trenches and no sheen or odor was discovered along the creek.

The EPA tasked Tetra Tech START to assess air quality due to the gasoline volatilizing from the ruptured line. The area surrounding the release included a long-term parking lot approximately 100 meters to the west of the ruptured line, undeveloped land to the north, McCrory Creek to the east, and an airport runway to the south (see Figure 2 in Enclosure 1). EPA tasked Tetra Tech START, on April 10, to set up air monitoring locations to assess the site and potential impacts to surrounding areas, focusing on the nearest receptor area. Tetra Tech START was also tasked to provide intermittent air monitoring support in the work zones to confirm the success of personnel protective measures.

On April 10, Tetra Tech START set up an AreaRae Pro air monitoring station between the site and the public parking lot to the west (see Figure 2 in Enclosure 1, Unit 9). The AreaRae Pro was configured with sensors for detection of oxygen, carbon monoxide, hydrogen sulfide, lower explosive limit (LEL), volatile organic compounds (VOCs), and gamma radiation. Tetra Tech START monitored the station from the site staging area via a computer using ProRae Guardian and VIPER telemetry. Due to VOC readings that ranged from 3 to 13 parts per million (ppm), three additional air monitoring stations were set up (see Figure 2 in Enclosure 1). All four stations sampled continuously until the evening of April 11.

Table 1 summarizes air monitoring data captured by VIPER. The data was divided into three 12-hour periods for the report. The VOC detections ranged from non-detect to 43.18 ppm. All other parameters monitored; carbon monoxide, hydrogen sulfide, and the LEL did not have any detections. Oxygen levels remained consistent at approximately 20.9%.

On April 11, OSC Garrard discovered a location where product had emerged from the bank and began to discharge into McCrory Creek. Tetra Tech START used a MultiRae Pro to continuously monitor for VOCs and an UltraRae to spot check benzene concentrations to assist Colonial in their worker safety air monitoring during certain tasks. The START and Colonial air monitoring detections in the work zones were consistent for benzene. Benzene detections were seen as high as nine ppm, but most detections ranged from three to five ppm. All detections in work zones were for very short durations. When benzene was detected, the workers would stop and exit the work area. If the benzene levels remained elevated, personnel were prepared to increase the level of respiratory protection and institute further engineering controls.

To address the release to the creek, Colonial placed additional boom and absorbent pads over the discharging product until the vacuum trucks were positioned. Hand augers were used to delineate the product's below ground pathway to the creek. An interception trench was constructed up gradient of the

discovered seeps along the creek bank. Once completed, a vacuum truck was used to remove the collected product from the trench (see Figure 3 in Enclosure 1).

On April 12, the perimeter air monitoring was discontinued, as the pipeline was no longer releasing product and the damaged line was temporarily repaired. Colonial discovered a second seep of product into the creek, approximately eight feet north of the first observed seep and expanded the trench to better intercept the pathway to the second seep. As product was observed collecting in the excavated drainage ditch along the access road, the vacuum truck was used to remove product from the ditch. Colonial began excavating the surface soil along the affected area of the hillside (an area approximately 150 feet wide, 300 feet long, and 0.5 feet deep) to remove affected soil (see Figure 3 in Enclosure 1).

On April 13, Colonial identified an additional seep located approximately 20 feet upstream of the first observed seep. Colonial placed soft boom around the seep and utilized a vacuum truck to remove the product. Additionally, exploratory holes were dug along the northwestern and western portion of the hillside, nearer the airport, to investigate other potential product pathways. Fill material composition prevented hand auger use. Colonial continued excavating affected surface soil from the hillside and using vacuum trucks for removing product collected in the trench. As the excavation proceeded, Colonial began to back fill and stabilize the excavated surface soil area to minimize sediment erosion.

On April 14, a portion of the boom in the creek failed due to higher water levels and a faster flow rate from an overnight rain event. Most of the downstream boom was still in place, and no sheen was observed downstream off the airport property. Colonial continued excavating and backfilling the affected surface soil area on the hillside and utilizing vacuum trucks to remove product collected in the trench.

On April 15, the Unified Command conducted a meeting to discuss future actions at the Site. In addition to EPA, Colonial, TDOT, the Nashville Airport, and the Tennessee Department of Environment & Conservation (TDEC) Water and Remediation programs were in attendance. Colonial presented the current status of the incident, committed to continue to conduct necessary actions to address the discharge, and opened dialogue with TDEC regarding future activities related to water quality and remediation. OSC Spurlin determined that Colonial had adequate resources in place to address the discharge and demobilized from the Site. OSC Spurlin utilized a local START to periodically monitor the ongoing work for the next week.

From April 15 to 19, Colonial continued to remove product from the trench and continued excavation and backfill on the affected hill near the rupture site (see Figure 3 in Enclosure 1).

As of April 19, an estimated 3,616 cubic yards of soil were stockpiled for removal, and 39,831 gallons of liquid were collected from the recovery trench; 837 gallons of the recovered liquid was estimated to be fuel. It is anticipated that additional soils and waste liquids will be generated as Colonial continues to recover fuel from existing collection points. Colonial has installed multiple, additional collection trenches and points to improve the efficiency of the collection of the fuel and continues to maintain and monitor the creek boom (see Figure 3 in Enclosure 1). In coordination with TDEC, Colonial has implemented a surface water quality sampling program.


Colonial has agreed to continue the applicable removal efforts and response operations until there is no longer a discharge or threat of discharge to the surface waters.

Tetra Tech START demobilized on April 19, 2019.

Mr. Steve Spurlin
August 16, 2019
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If you have any questions or need additional copies of this report, please contact Leslie Shaver at (678) 775-3093 or leslie.shaver@tetrattech.com.

Sincerely,



Leslie Shaver
START IV Project Manager



Andrew F. Johnson
START IV Program Manager

Enclosures (3)

cc: Katrina Jones, EPA Project Officer
Angel Reed, START IV Document Control Coordinator

ENCLOSURE 1

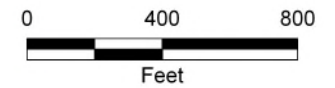
FIGURES

(3 Pages)



Legend

- Pipeline Break
- AreaRAE
- Creek



Map Source:
Bing Maps Hybrid



United States
Environmental Protection Agency
Region 4

FIGURE 2

Air Monitoring Locations

TDD Name: Nashville International
Airport Gas Line

TDD No.: TT-03-034

City: Nashville	County: Davidson	State: Tennessee
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Date:
5/29/2019
Analyst:
katie.wise

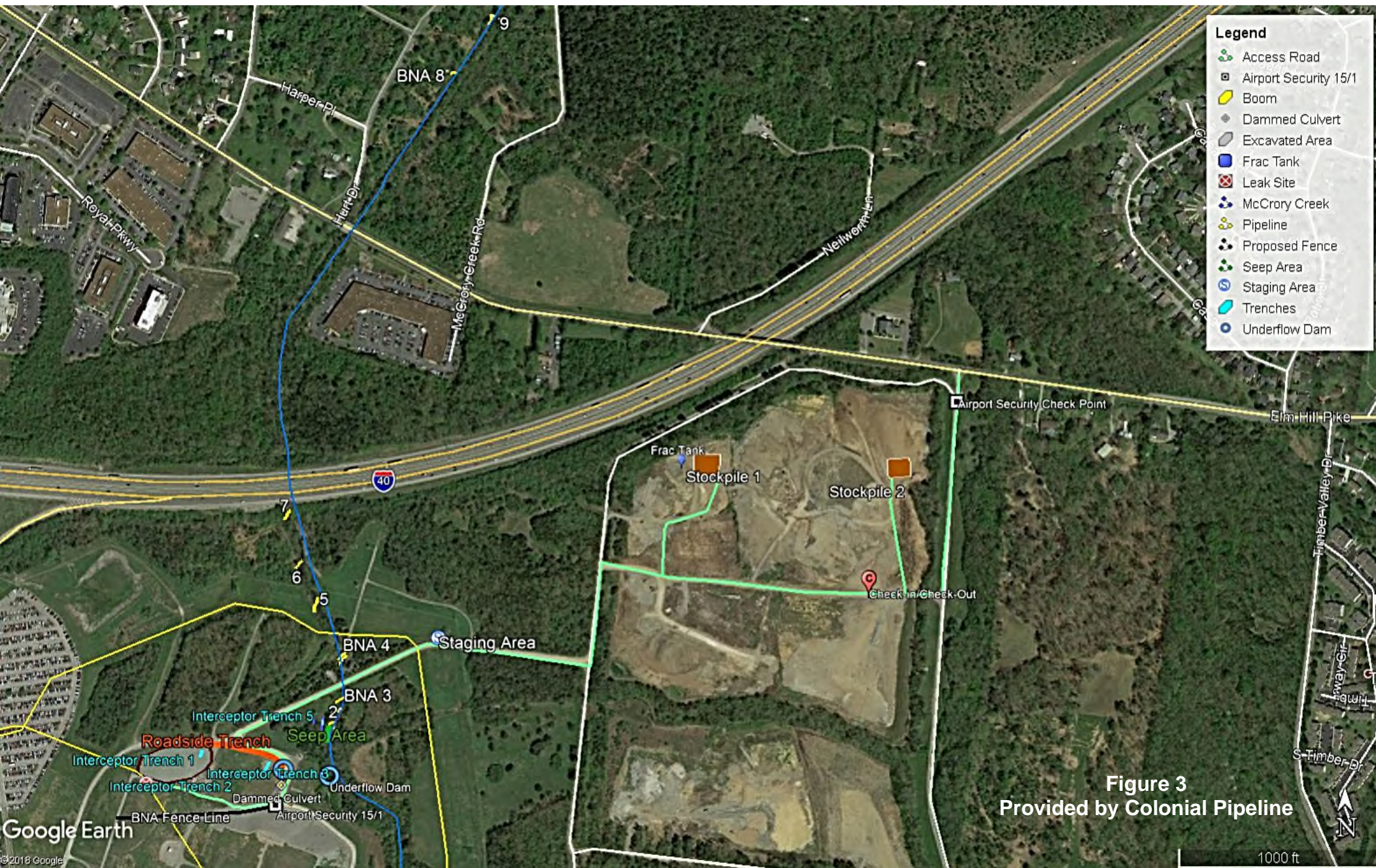


Figure 3
Provided by Colonial Pipeline

ENCLOSURE 2

TABLES

(3 pages)

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Nashville International Airport Gas Line

From: 4/10/19
8:22

To: 4/10/19
20:24



Location 1, Unit 9, Northwest of ruptured pipeline							
Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	8,325	5,752	0 - 8.707 ppm	0.5 ppm	1 ppm
	CO	No	8,279	0	0 - 0 ppm	0 ppm	83 ppm
	H ₂ S	No	8,325	0	0 - 0 ppm	0 ppm	0.5 ppm
	O ₂	No	8,325	8,325	20.4 - 21.1%	20.9%	<19.5 or >23%
	LEL	No	8,325	0	0 - 0%	0%	10%

Location 2, Unit 10, Northeast of ruptured pipeline							
Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	Yes	6,852	5,261	0 - 13.616 ppm	1.4 ppm	1 ppm
	CO	No	6,852	0	0 - 0 ppm	0 ppm	83 ppm
	H ₂ S	No	6,852	0	0 - 0 ppm	0 ppm	0.5 ppm
	O ₂	No	6,852	6,852	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,852	0	0 - 0%	0%	10%

Location 3, Unit 11, Southwest of ruptured pipeline							
Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	6,688	603	0 - 4.748 ppm	0.1 ppm	1 ppm
	CO	No	6,688	0	0 - 0 ppm	0 ppm	83 ppm
	H ₂ S	No	6,688	0	0 - 0 ppm	0 ppm	0.5 ppm
	O ₂	No	6,688	6,688	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,688	0	0 - 0%	0%	10%

Location 4, Unit 12, North of ruptured pipeline							
Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	6,544	3,677	0 - 7.65 ppm	0 ppm	1 ppm
	CO	No	6,544	44	0 - 5 ppm	0 ppm	83 ppm
	H ₂ S	No	6,544	0	0 - 0 ppm	0 ppm	0.5 ppm
	O ₂	No	6,544	6,544	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,544	0	0 - 0%	0%	10%

Notes:

%	Percent	ppm	Part per million
<	Less than	PM	Particulate matter
>	Greater than	SOG	Standard Operating Guidelines
AEGL	Acute Exposure Guideline levels for airborne chemicals	TLV	Threshold limit value
CO	Carbon monoxide	µg/m ³	Micrograms per cubic meter
H ₂ S	Hydrogen Sulfide	VOC	Volatile organic compound
LEL	Lower Explosive Level		
min	Minute		
O ₂	Oxygen		
PEL	Permissible exposure limit		

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Nashville International Airport Gas Line

From: 4/10/19
21:01

To: 4/11/19
8:56



Location 1, Unit 9, Northwest of ruptured pipeline							
Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	1,236	119	0 - 5.2 ppm	0.1 ppm	1 ppm
	CO	No	1,262	0	0 - 0 ppm	0 ppm	83 ppm
	H ₂ S	No	1,262	0	0 - 0 ppm	0 ppm	0.5 ppm
	O ₂	No	1,262	1,262	20.9 - 21.3%	20.9%	<19.5 or >23%
	LEL	No	1,262	0	0 - 0%	0%	10%

Location 2, Unit 10, Northeast of ruptured pipeline							
Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	Yes	1,076	1,035	0 - 43.18 ppm	2.3 ppm	1 ppm
	CO	No	1,124	0	0 - 0 ppm	0 ppm	83 ppm
	H ₂ S	No	1,124	0	0 - 0 ppm	0 ppm	0.5 ppm
	O ₂	No	1,124	1,124	20.9 - 21.3%	20.9%	<19.5 or >23%
	LEL	No	1,124	0	0 - 0 %	0%	10%

Location 3, Unit 11, Southwest of ruptured pipeline							
Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	1,312	40	0 - 0.98 ppm	0 ppm	1 ppm
	CO	No	1,419	0	0 - 0 ppm	0 ppm	83 ppm
	H ₂ S	No	1,419	0	0 - 0 ppm	0 ppm	0.5 ppm
	O ₂	No	1,419	1,419	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	1,419	0	0 - 0%	0%	10%

Location 4, Unit 12, North of ruptured pipeline							
Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	1,193	973	0 - 13.47 ppm	1.5 ppm	1 ppm
	CO	No	1,290	0	0 - 0 ppm	0 ppm	83 ppm
	H ₂ S	No	1,290	0	0 - 0 ppm	0 ppm	0.5 ppm
	O ₂	No	1,290	1,290	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	1,290	0	0 - 0%	0%	10%

Notes:

%	Percent	ppm	Parter per million
<	Less than	PM	Particulate matter
>	Greater than	SOG	Standard Operating Guidelines
AEGL	Acute Exposure Guideline levels for airborne chemicals	TLV	Threshold limit value
CO	Carbon monoxide	µg/m ³	Micrograms per cubic meter
H ₂ S	Hydrogen Sulfide	VOC	Volatile organic compoud
LEL	Lower Explosive Level		
min	Minute		
O ₂	Oxygen		
PEL	Permissible exposure limit		

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Nashville International Airport Gas Line

From: 4/11/19
9:01

To: 4/11/19
18:53



Location 1, Unit 9, Northwest of ruptured pipeline							
Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	4,843	0	0 - 0 ppm	0 ppm	1 ppm
	CO	No	4,843	0	0 - 0 ppm	0 ppm	83 ppm
	H ₂ S	No	4,843	0	0 - 0 ppm	0 ppm	0.5 ppm
	O ₂	No	4,843	4,843	20.9 - 21.8%	21.4%	<19.5 or >23%
	LEL	No	4,843	0	0 - 0%	0%	10%

Location 2, Unit 10, Northeast of ruptured pipeline							
Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	4,829	4,800	0 - 4.335 ppm	0.6 ppm	1 ppm
	CO	No	4,829	0	0 - 0 ppm	0 ppm	83 ppm
	H ₂ S	No	4,829	0	0 - 0 ppm	0 ppm	0.5 ppm
	O ₂	No	4,829	4,829	20.9 - 21.6%	21.3%	<19.5 or >23%
	LEL	No	4,829	0	0 - 0 %	0%	10%

Location 3, Unit 11, Southwest of ruptured pipeline							
Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	4,943	0	0 - 0 ppm	0 ppm	1 ppm
	CO	No	4,943	0	0 - 0 ppm	0 ppm	83 ppm
	H ₂ S	No	4,943	0	0 - 0 ppm	0 ppm	0.5 ppm
	O ₂	No	4,943	4,943	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	4,943	0	0 - 0%	0%	10%

Location 4, Unit 12, North of ruptured pipeline							
Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	4,631	1,827	0 - 6.556 ppm	0.3 ppm	1 ppm
	CO	No	4,631	0	0 - 0 ppm	0 ppm	83 ppm
	H ₂ S	No	4,631	0	0 - 0 ppm	0 ppm	0.5 ppm
	O ₂	No	4,631	4,631	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	4,631	0	0 - 0%	0%	10%

Notes:

%	Percent	ppm	Parter per million
<	Less than	PM	Particulate matter
>	Greater than	SOG	Standard Operating Guidelines
AEGL	Acute Exposure Guideline levels for airborne chemicals	TLV	Threshold limit value
CO	Carbon monoxide	µg/m ³	Micrograms per cubic meter
H ₂ S	Hydrogen Sulfide	VOC	Volatile organic compoud
LEL	Lower Explosive Level		
min	Minute		
O ₂	Oxygen		
PEL	Permissible exposure limit		

ENCLOSURE 3
LOGBOOK NOTES
(14 Pages)

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TT-03-034

1

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Address leslie.shaver@htritech.com

Phone 678-325-9276

Project Nashville Int. Airport Gasoline Response

[illegible]

Nashville Gas

4/9/19

1004 pm CST START arrives @ site

OSC Spurlin & Gerrard on site

CTH - Colonial Contractor

② 6 =

monitoring

team doing perimeter (receptors
& airport parking lots)

- Gasoline release (750 barrels)?
- tox guy doing safety plan
- we will cover / fill in gaps
or parallel, to check their
readings
- on hill central air monitoring ^{survey} ~~survey~~ ^{the}
- 8 totes of encapsulating foam, F-500
- apply foam to pipe near & start
exca varying soil, once levels
are acceptable
- McCrory Creek is new release
fixed booms on ~~200~~ creek every
200 yrs.

- RP is clearing utilities,
then will start excavation,
as excavating will spray & encapsulate
with foam & stock pile

CTH is getting

0.2 - 0.3 ppm on Benzene (0.5 ppm PEL)

1-2 ppm VOC

1100 off-site

Scale: 1 square =

4/10/19 Nashville Gas

L. Shaver³

0610 START Shaver & Williams onsite

Weather: currently 50's & clear expected
to reach low 80's & stay clearWorkplan: set up air monitoring stations
review site to locate any gasolineBump & prep Area Res & multirecsstage / deployment - ① @ parking lot0727 Deploy Area Res unit 9 ^{East} ~~South~~ of
airport parking lot, ^{west} ~~at~~ of pipeline breach- 0855 OSC Spurlin ^{delivered} ~~hard copy~~ a hard copy
of NOFI letter to Colonial Incident
Command @ ICP NOFI: ^{notice of} ~~federal~~ interest

1014 Area Res unit 11 deployed

1010 Area Res unit 10 deployed

1025 Area Res unit 12 deployed

START Williams reviewed stream
yes! (McCrory Creek?) photodocumented
lack of sheen in all areas

- Crew has almost reached the p.p.o.
in the main excavation

Scale: 1 square =

Rite in the Rain

- 4 ~~4/10/19~~ 4/10/19 Nashville Gas L. Shaver
crew has also excavated ~~the~~ drainage ditch
and down slope from drainage ditch
- photos collected
 - crew has uncovered pipe and breach,
product still coming out of crack in pipe
 - they do not want to remove drill bit
from pipe until sure there is no remaining
pressure in pipe, they will let
product accumulate in excavation hole
and use vacuum truck to remove from
hole
 - 2 underflow dams have been installed
where the drainage ditch ~~area~~ empties
into McCrory Creek, OSC Gerrard has
requested to add more pipes to each
underflow dam
 - crew removed drill bit from pipe line,
crew will continue to excavate
affected material (fill w/ lots of
concrete with the soil) passing to
vacuum accumulated product from excavation
when needed
 - crew will continue to excavate and
vacuum until able to access pipe for
sleeve repair process, vacuum activities

- 4/10/19 Nashville Gas L. Shaver⁵
will continue until product no longer
accumulates
- PRG will continue to run overnight
while ~~with~~ crew continues work
 - Alarms set for 5min TWA @ $\geq 15,000$ ppb
(15ppm) for VOCs
 - data for day was variable across the
4 Area Rae units highest reading for
VOCs was over 13,000 ppb, all detections
were instantaneous and did not sustain
for any length of time
- 1945 START leaves site for hotel

4/10/19

L. Shaver

6 4/11/19

0630 START onsite. VIPER did not run all night bc the EPA computer logged the user out via security measures. Restarted VIPER.

0730 Data manually downloaded off of Area Rae's through PRO Rae Studio II.

0830 All stations up and running. Creek did not have any product, but the creek east of the road had a strong gas odor.

1000 OSC Gerrard located a spot where product is beginning to come out of and entering the creek. Crews begin to address it by placing absorbent pads and additional boom out. A suction tank was brought down to collect the product.

1100 Batteries to Area Rae's changed. Monitoring PRO Rae Guardian & VIPER as well as collecting photos.

- START reviewed area near creek where seep is being addressed, VOCs will wait as crew removes saturated pads & boom, several benzene readings on the benzene multi Rae, most 3-15 ppm

4/11/19 Nashville Gas L. Shaver

some 8 and 9 ppm

- no readings were sustained, all were gone in seconds
- after seep was found Colonial Crew used hand augurs to depth of 5-6 ft several holes had Benzene readings on the multi Rae.

- Colonial will excavate a trench upslope of the seep area

- the seep slowed down for ~ an hour and then started seeping more, crew still catching and vacuuming out

~1615 Crew begins excavation of trench upslope of seep @ creek, refusal @ 6.5 ft with large flat-ish rock? can product begin seeping into the excavation

- crew will continue to vacuum product from seep and the excavated trench

- night ops will place more plastic sheeting over potentially affected soil in anticipation of rain events (today & Sunday)

- start shift @ 1950

- Area Raes stopped od not monitoring, because of high gusting winds and rain expected

Shaver

Scale: 1 square =

Notes: no rain

8 4/12/19 Nashville Gas L. Shaver

0655 START on site,

Weather: rain event expected this morning
70-80's, overcast

- Crew discovered second seep ~8ft N of 1st seep
- also being vacuumed out
- crew also vacuumed accumulated product from auger holes w/ trench
- bailer placed in auger hole showed 4-5 inches of product
- crew is planning to excavate another trench near auger holes w/ product bed
- will make this trench bigger (longer not wider)
- | | | | | |
|-----------------|---|----------------|---|------------------------------|
| 750 | → | 200 | → | 380 barrels |
| original report | | 2nd estimation | | 16,000 gallon now estimation |
- crew planning to begin excavation on hillside, start w/ bin deep, will collect construction samples from floor of excavation
- crew using hand augers to try and delineate along bank stepping out

Scale: 1 square =

9 4/12/19 Nashville Gas L. Shaver

from seep areas

- delayed excavations due to equipment issues
- boom (some) sections will be replaced due to a contractor demolishing
- START Williams demolished ~0715
- START Shaver and OSC Garrard retrieved stream bank down stream of seeps
- no further seeps nor sheen seen down stream
- a contractor is potentially taking their boom when demolishing they have been informed that the "new" boom must be placed ~~is~~ adjacent down stream before removing "old".
- OSC Garrard off-site, demolished
- Crew found a seep into a ditch/trench halfway down slope of hill, crew will vacuum it out & dewater
- ~1000 crew begins pulling back poly starting at top of hill closest to excavation
- vac truck to hillside ditch seep
- excavation / scrape on hill is ~150 ft (N to S) wide & 300 ft long (E to W) ~60,000 sq ft

Scale: 1 square =

Return to the Rain

4/12/19 Nashville Gas L. Shaver
trench is ~ 7-8 ft deep, ~ 1/2 in deep
product seeping from the upslope (w)
wall of the trench in several places

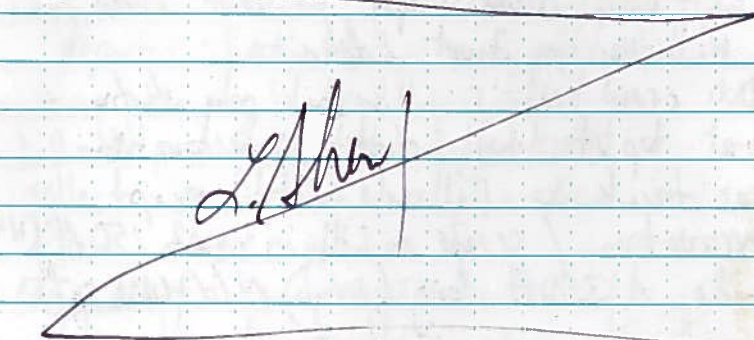
- trench extended to the south
- crew has begun backfilling the
scrape on the hill, decent separation
between excavation and backfill
- crew installing plastic perforated pipe
as risers in the trench, to hold
the hole open in case of wall collapse
- crew will cover stock piles with poly before
rain event

Terad Tank (CP)

205-306-0987

- ~~also~~ reviewed main contaminated soil
stockpile

1915 - START A-site



4/13/19 Nashville Gas L. Shaver

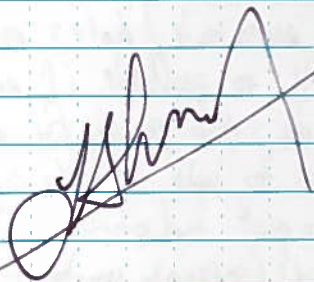
OTW START Shaver onsite

Weather: currently raining, expected to
rain all day in varying strengths

- crew discovered 3rd seep in McCray Creek
bank, ~ 20 ft upstream of 1st seep
- this new seep is being addressed w/ back
hoze just in water, & 3-4 layers of
80 ft boom surrounding area
- reviewed ~ 50 ft upstream of 3rd seep
no other seeps or when seen, issues
this area of the bank is mostly rock
and the flow is faster, making it difficult
to see further seeps
- crew has continued excavation of
hill side path of gas release, last night
they ran into LEL & VOC hits on
monitoring devices so excavation paused until
day ops for more safety
- crew had to excavate holes on the NW
side of the hill to evaluate if any gas
was on that side, too rocky for augers
- excavated adjacent to hole of the pipe break
to the east and started down on hill
- crew found product / screening monitors on visual?
in hole on airport side of hill

4/13/19 Nashville Gas L. Shaver
 crew has covered area at base of hill before crossing road, this area was excavated last night & had the high LEL (heard >50 or 57) and high VOCs (both reported not seen by START)

- 8000-5000-20000
- crews excavating at top of hill, both at the original break and at the holes on the hillside close to airport
 - fire fighters are spraying the foam fire retardant in excavation near the break
 - crew backfilling the large hillside excavation (not @ bottom of hill)
 - after kind-of backfilling the crews are laying plastic over hillside in preparation for overnight rain event
 - 1800 START @ A-site

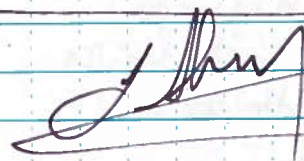


0700 START to site

Weather currently between large rain storms
 site conditions are muddy, overcast,
 severe weather expected later

- most of the poly is still covering the hill
- the seep found in the ditch has pushed a little more, ditch full of water because has blocked drainage
- crew has further excavated the pipeline near the break while backfilling the 2 nearest holes excavated to check for product pockets
- the excavation near the airport parking lot has been covered with poly
- boom failure in creek due to higher water & flow rate, downstream booms are still mostly in place, no sheen seen escaping, but sheen and foam seen @ 1st boom downstream from seeps

0900 START Shaver demob to Atlanta



4/15/19 Nashville Gas T. Taylor
0745. on site.

Crew pumped out catch basin at bottom of hill.

0800 - crews excavating 6' means
6" of soil from ~~bottom~~ ^{bottom} even
- unknown plastic at
top of hill near
Pipeline Break.

0830 - scraping catch
basin lower level
to crest.

0930 - wear points - day (Puddles
slight shear. (interceptor
boom in place appropriate)
in creek. hard torn in
water. soft boom has
been changed.

0950. Colonial coating the
pipe with Hd pc. wheel
line broke occurred.
Erosion control matting
in place on hill
from pipe break
silt fence is also installed.

Taylor

4/15/19 Nashville Gas T. Taylor

- Clearly trees 25 yds

Mike Cutting

423-280-~~1288~~

from the interceptor trench
to place monitoring wells.

Mike Newmyer

423-242-8635

10:00 meeting Colonial pipeline
900 m S, US

As far as they
have seen 15 boom site
4.

Colonial is collecting surface
water on Millery Creek
and inspecting the
Cumberland River

trench Recovery
1 gallon per ft

Seeps have reduced.

- Continue assessing boom
trench operations.
- Chopped and seeded Road
side trench.

Taylor

4/15/14 Nashville Gas

scrapping and seeds near
the Retention basins

- Remedy trees west
of the trench -
- issuing operation and
maintenance plan
- Hand oxygen Boys
near the Dams
culvert
- 2 stock pile areas
spoolin - to the point
still at the 40
- State to look at water
and Nashville water
- Ken assistly
with Assessments
for the State Review.
- Airport would like
to be part of the decision
- 24 hr ops - Remainder
of the plan -

* Juan Cazares
Colonial Project leader
404-558-0186

4/15/19 Nashville Gas 1.7q/h 17

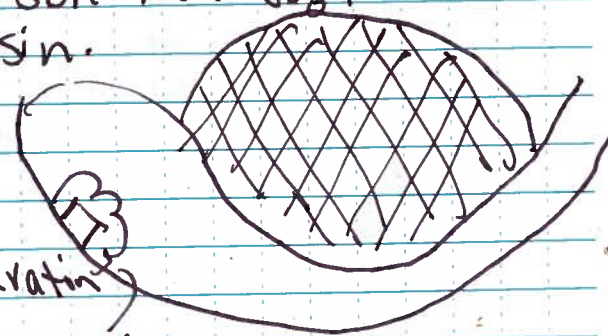
11:00 Site walk - Continue
with clearing trees
25 yds in front of
the interceptor trench.
Remove plastic @ the
catch Basin.

12:30 Lunch

1300 Return to work

Colonial has brought
a chipper grinder to
chip trees Remand
near the interceptor trench.

1400. Colonial is removing 6'-10'
of soil north of the catch
basin.



EXCAVATING

area -

25 yds

by 30 yds

Dirt

plug

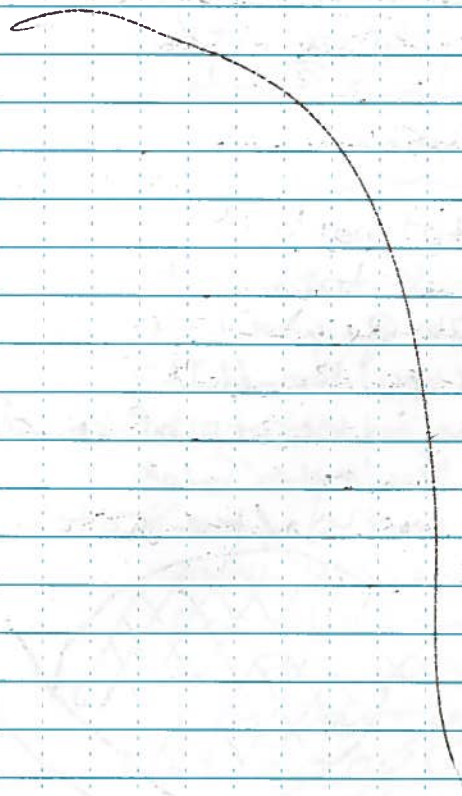
covering

concrete spill way

18 4/15/19 Nashville Gas "Taylor"

13:00 Left Site.

16:00 - Arrive at office



Taylor
4/15/19

Scale: 1 square = _____

4/16/19 Nashville Gas "Gyl"

19

0730 - Crew continue to remove
Product from the
interceptor trench

0740 - excavating the soil
to the north of the
Catch Basin

0800 - observed crew steady
area.

0830 - Left Site

14:00 Returned to Site

- Continue pumping
- Transporting soil
to #2 Laydown area
on site.
- trench complete.

1600 - off site.

Taylor
4/16/19

Scale: 1 square = _____

Plot in the Rain

- 4/17/19 Nashville GAS T Tgt
 0730 - complete the trench
 installation north
 of the existing trench
 0830 - observed Contractor
 Pumping from the existing
 trench.
 0845 - observed Boom in
 3 locations along the
 creek. Hard Boom
 and Soft Boom in
 proper positions
 0900 observe the placement
 of sand on the erosion
 mat on the Hill dam
 from the Pipe dangle.
 10:00 Left site
 16:00 Return to site - Colonial
 Contractor Pumping
 from existing trench
 1700 Left site.

~~T. J. P.~~
 4/17/19

4/18/19 Nashville GAS 11/21

0900. Tailgate Safety meeting
 - met with Gabe Parrie
 with Colonial
 423 - 443 - 8143

- to date the Colonial
 Pipe line Excavation
 has yielded 3,616
 Cubic yards of soil
 Stockpiled in area
 1(+)-2.

- to date they have
 removed 39,831 gallons
 of liquid from the
 Recovery trench
 837 is estimated
 to be fuel
- Site activities
- Pump from trench
 removed clay
 Booms as necessary
- Spill up separately
 that release
 fuel

1100 - Left site.

T. J. P. 4/18/19

4/19/19 Nashville GAS

Taylor

0730 - Site Activities

- Vacuum Trucks continue to
- Rain over night 0.69 inches
of rain.
- No other Activities
other than Pumping from
the manifold continue
to collect surface water samples
- two vacuum trucks on site
- creek may have risen
* 2 inches.
- Spoke with Gaber Parks
Colonial on site Rep.
- Boom Replaced
- 6 pads used in the
last 24 hrs to
catch Burps coming
from the scaps.

0800 - Called OSC

0830 - Left Site

Taylor
4/19/19